



CLEAN COPY OF CLAIMS

RECEIVED

MAY 28 2002

TC 1700

1. A moisture transfer apparel to be worn by an individual comprising, on at least a portion of the apparel, a combination of layers comprising:

a first layer, closest to the individual, the first layer being an inner moisture transfer material;

a second layer, abutting the first layer, including a foam material;

a third layer, abutting the second layer, including a nonwoven material; and

a fourth layer, abutting the third layer, the fourth layer being an outer moisture transfer material treated by encapsulation for waterproofing.

2. The moisture transfer apparel according to claim 1, wherein at least two of the first, second, third and fourth layers are attached to each other by lamination.

3. The moisture transfer apparel according to claim 1, wherein at least two of the first, second, third and fourth layers are attached to each other by mechanical bonding.

4. The moisture transfer apparel according to claim 1, wherein the fourth layer is laminated to the nonwoven of the third layer.

7. The moisture transfer apparel according to claim 1, wherein the outer moisture transfer materials are fabrics that are structurally knitted or woven to repel water.

17. The moisture transfer apparel according to claim 1, wherein the second layer and third layer are formed as an elastomeric composite having the nonwoven material attached to the foam.

21. The moisture transfer apparel according to claim 1, wherein the second layer is treated with microencapsulation technology which can adjust to temperature changes.

22. The moisture transfer apparel according to claim 7, wherein the second layer is treated with microencapsulation technology which can adjust to temperature changes.

23. The moisture transfer apparel according to claim 1, wherein the second layer is treated to have reversible enhanced thermal properties.

24. The moisture transfer apparel according to claim 7, wherein the second layer is treated to have reversible enhanced thermal properties.

45. The moisture transfer apparel according to claim 1, wherein the outer moisture transfer material is selected from a group consisting of cotton and a cotton blend.

46. The moisture transfer apparel according to claim 1, wherein the outer moisture transfer material comprises synthetic fibers.

52. The moisture transfer apparel according to claim 1, further comprising a membrane, abutting the foam material, for providing either warmth or cooling.

8. A moisture transfer apparel to be worn by an individual comprising, on at least a portion of the apparel, a combination of layers comprising:

a first layer, closest to an individual, the first layer being an inner moisture transfer material;

a second layer, abutting the first layer, including a foam material;

a third layer, abutting the second layer, including a breathable membrane; and

a fourth layer, abutting the third layer, the fourth layer being an outer moisture transfer material treated by encapsulation for waterproofing,

wherein the second layer includes a non-woven material attached to the foam material such that it is between the foam material and the third layer.

9. The moisture transfer apparel according to claim 8, wherein at least two of the first, second, third and fourth layers are attached to each other by lamination.

10. The moisture transfer apparel according to claim 8, wherein at least two of the first, second, third and fourth layers are attached to each other by mechanical bonding.

13. The moisture transfer apparel according to claim 8, wherein the outer moisture transfer materials are fabrics that are structurally knitted or woven to repel water.

25. A moisture transfer apparel according to claim 8, wherein the foam material is treated to have reversible enhanced thermal properties.

53. The moisture transfer apparel according to claim 8, further comprising a membrane, abutting the foam material, for providing either warmth or cooling.

20. A moisture transfer apparel comprising on at least a portion of the apparel, a combination of layers comprising:

a first layer, closest to an individual, the first layer being an inner moisture transfer material; and

a second layer, abutting the first layer, comprising an outer moisture transfer material that is treated with encapsulation for waterproofing.

47. The moisture transfer apparel according to claim 20, wherein the outer layer is selected from a group consisting of cotton and a cotton blend.

48. The moisture transfer apparel according to claim 20, wherein the outer layer comprises synthetic fibers.

26. A composite for a liner used in an apparel comprising:

an inner moisture transfer material;

an open cell foam material; and

an outer layer selected from a group consisting of cotton treated by encapsulation and a cotton blend treated by encapsulation.

27. A composite for a liner used in an apparel as claimed in claim 26, wherein the foam material is treated to have reversible enhanced thermal properties.

54. The composite for a liner used in an apparel according to claim 26, further comprising a membrane, abutting the open cell foam material, for providing either warmth or cooling.

28. A composite for a liner used in an apparel comprising:

an inner moisture transfer material;

an open cell foam material;

a non-woven material attached to the foam material;

and

an outer layer attached to the non-woven material, the outer layer being selected from a group consisting of cotton treated by encapsulation and a cotton blend treated by encapsulation.

49. A composite for a liner use in an apparel according to claim 28, wherein the open cell foam material is treated to have reversible enhanced thermal properties.

55. The composite for a liner used in an apparel according to claim 28, further comprising a membrane, abutting the open cell foam material, for providing either warmth or cooling.

29. An apparel to be worn by an individual comprising:
an outer moisture transfer material treated by
encapsulation for waterproofing;
a foam layer abutting the outer moisture transfer
material; and
a non-woven material attached to the foam layer such
that the foam layer is located between the non-woven material
and the outer moisture transfer material, wherein the foam
layer is an open cell foam and is treated to have reversible
enhanced thermal properties.

30. An apparel according to claim 29, wherein the non-
woven is treated to have reversible enhanced thermal
properties.

56. The apparel according to claim 29, further
comprising a membrane, abutting the foam layer, for providing
either warmth or cooling.

31. An apparel to be worn by an individual comprising:
an inner moisture transfer material;
an open cell foam treated to have reversible
enhanced thermal properties abutting the inner moisture
transfer material;
a breathable membrane abutting the open cell foam;
and
an outer moisture transfer material abutting the
breathable membrane, the outer moisture transfer material
being treated by encapsulation for waterproofing.

34. An apparel according to claim 31, wherein the outer
moisture transfer material is one of a group consisting of
denim and chino fabrics.

32. An apparel to be worn by an individual comprising:

- an inner moisture transfer material;
- an open cell foam treated to have reversible enhanced thermal properties abutting the inner moisture transfer material;
- a breathable membrane abutting the open cell foam;
- an outer moisture transfer material abutting the breathable membrane; and

wherein the outer moisture transfer material is an encapsulated cotton blend.

36. An apparel to be worn by an individual comprising:
an outer moisture transfer material which is treated
by encapsulation for waterproofing; and
a cellular elastomeric composite which includes a
hydrophilic open cell foam backed by a non-woven top sheet.

37. An apparel according to claim 36, wherein the foam
is treated to have reversible enhanced thermal properties.

40. An apparel according to claim 36, wherein the outer
moisture transfer material is one of a group consisting of
denim and chino fabrics.

57. The apparel according to claim 26, further
comprising a membrane, abutting the open cell foam, for
providing either warmth or cooling.

38. An apparel to be worn by an individual comprising:
an outer moisture transfer material;
a cellular elastomeric composite which includes a
hydrophilic open cell foam backed by a non-woven top sheet;
wherein the foam is treated to have reversible
enhanced thermal properties; and
wherein the outer moisture transfer material is an
encapsulated cotton blend.

41. An apparel to be worn by an individual comprising:
an outer moisture transfer material which is treated
by encapsulation for waterproofing;
a foam layer abutting the outer moisture transfer
material; and
a non-woven material attached to the foam layer such
that the foam layer is located between the non-woven material
and the outer moisture transfer material, wherein the foam
layer is treated with microencapsulation technology which can
adjust to temperature changes.

42. An apparel according to claim 41, wherein the outer
moisture transfer material is an encapsulated cotton blend.

44. An apparel according to claim 41, wherein the outer
moisture transfer material is one of a group consisting of
denim and chino fabrics.

50. A composite for a liner used in an apparel comprising:

- an inner moisture transfer material;
- an open cell foam material; and
- an outer layer which comprises encapsulated synthetic fibers.

51. The composite for a liner used in an apparel as claimed in claim 50, wherein the foam material is treated to have reversible and thermal properties.

58. The composite for a liner used in an apparel according to claim 50, further comprising a membrane abutting the open cell foam material which provides either warmth or cooling.

60. A composite for a liner used in an apparel comprising:

an inner moisture transfer material;

an open cell foam material;

a non-woven material attached to the foam material;

and

an outer layer attached to the non-woven material, the outer layer comprising encapsulated synthetic fibers.

61. A composite for a liner use in an apparel according to claim 60, wherein the open cell foam material is treated to have reversible enhanced thermal properties.

59. A composite for a liner used in an apparel according to claim 52, further comprising a membrane abutting the open cell foam material which provides either warmth or cooling.